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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,515	10/26/2001	Tsutomu Tanaka	A5015/T40100	2999

32588 7590 12/13/2004

APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER	
JONES, STEPHEN E	
ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 12/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/045,515	TANAKA ET AL.	
	Examiner	Art Unit	
	Stephen E. Jones	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,9-11 and 14-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,9-11 and 14-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/12/04 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the bent transmission lines at a substantially fixed distance apart within their inductive length must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guanella (US 2470307) in view of Thomas (of record).

Guanella (Fig. 1) teaches an impedance matching transformer including: two coiled (i.e. bent so as to reduce the length in the same manner as the present invention) transmission lines coupled together; the lines are substantially a fixed distance apart (Claim 21). Also, note that the claim does not appear to require the device to be connected to an ac power source, it merely needs to be capable of connecting to the source (i.e. the claim states "can be").

However, Guanella does not explicitly teach that the inductive length is at least one wavelength (Claim 1).

Thomas provides the general teaching of a coupler having the inductive length be a quarter wavelength or an odd multiple thereof (e.g. see Col. 2, lines 49-52).

It would have been considered obvious to one of ordinary skill in the art to have made the inductive length of the Guanella transformer be and odd multiple of a quarter wavelength such as 5 (as taught by Thomas), especially since Guanella is silent as to the length and odd multiples including 5 are a well-known high frequency inductive/coupling length such as taught by Thomas.

6. Claims 2, 9-11, and 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. in view of Guanella (US 2470307) and Thomas (of record).

Yamazaki (e.g. see Fig. 1) teaches a plasma processing system including: an RF source generator (15) connected to a matching transformer coupling (16); the transformer is connected to a plasma processing chamber for substrates (see abstract)

(Claim 18 subject matter); and the source frequency is 13.56 MHz (e.g. see Col. 2, lines 50-52).

However, Yamazaki does not explicitly teach that the transformer has two transmission lines coupled over an inductive length which is at least one wavelength (Claims 9, 14), that the first line receives the ac energy from the source and the second line receives the energy from the first line and the second line delivers the energy to the plasma (Claim 10), that the lines are parallel (Claim 11), that the inductive length is between 3000 and .12 meters (Claim 15) or between 857 and .75 meters (Claims 2, 16, and 17), or that the overall dimension is approximately less than a meter or less (Claim 20.

As described above, Guanella teaches an impedance matching transformer coupler, and Thomas provides the general teaching of a coupler having the inductive length be a quarter wavelength or an odd multiple thereof.

Regarding Claims 10, 11, 18, 19, it would have been considered obvious to one of ordinary skill in the art to have substituted the transformer coupler such as taught Guanella in place of the generic transformer in the Yamazaki circuit device, because it would have been a mere substitution of a specific well-known art-recognized functionally equivalent impedance transformer means for providing the benefit of impedance matching.

Furthermore (regarding Claims 9, 14, 17, and 19), it would have been considered obvious to one of ordinary skill in the art to have chosen to make the inductive length of the conductors to have an odd multiple of a quarter wavelength be five (such as

suggested by Thomas) in the Guanella transformer, especially since Guanella is silent as to the length and odd multiples including 5 are a well-known high frequency inductive/coupling length such as taught by Thomas.

Also, regarding Claims 2, 15, 16, and 17, it would have been considered obvious to one of ordinary skill in the art to have the inductive length be between 3000 and .12 meters or between 857 and .75 meters, because Yamazaki teaches a typical frequency of 13.56 MHz and the length is related to the frequency (i.e. wavelength is equal to c/f) and with the odd multiple of 5 described in the previous paragraph the length would be within the ranges stated in the present claims.

With regard to claim 20, it would have been considered obvious to one of ordinary skill in the art to have the overall dimension and inductive length be a meter or less, especially since Yamazaki teaches a wide source frequency range and the dimensions and lengths of the matching network are result effective variables which are dependent on the pre-selected operating frequency and the pre-selected wavelength (i.e. a particular multiple of a quarter wavelength).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guanella (US 2470307) and Thomas (of record) as applied to claim 1 above, and further in view of Heiter (of record).

The combination of Guanella and Thomas teaches an impedance transformer coupler as described above. However, they do not explicitly teach that a trimming element is coupled to the first line and ground.

Heiter teaches using a resistor (e.g. 72) connected to a port of a coupler (e.g. 46) and coupled to ground.

It would have been considered obvious to one of ordinary skill in the art to have included a resistor element such as taught by Heiter between the port of the first transmission line and ground in the Guanella/ Thomas combination structure, because it would have provided the advantageous benefit of dissipating (i.e. trimming) unwanted reflections (see Col. 3, lines 36-44 of Heiter), thereby suggesting the obviousness of such a modification.

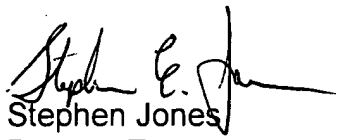
Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection incorporating the Guanella (US 2470307) and Yamazaki references.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 571-272-1762. The examiner can normally be reached on Monday through Friday from 8 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen Jones
Primary Examiner
Art Unit 2817

SEJ